

Architecture therapy: principles of designing and shaping space in centres for cancer patients, based on the architecture of Maggie's Centres



MSc. Eng. Arch.
JOANNA GRONOSTAJSKA
 Wrocław University of Science and Technology
 Faculty of Architecture
ORCID: 0000-0003-0627-9930



PhD. Eng. Arch.
ROMAN CZAJKA
 Wrocław University of Science and Technology
 Faculty of Architecture
ORCID: 0000-0003-0318-3140

This paper presents a study on the architecture created for the needs of Maggie's, a charity organisation. Based on the designs of Maggie's Centres, we identified basic principles of design and interior arrangement that can be used in other medical buildings and those that require their patients to maintain a high degree of psychophysical comfort. This paper presents evidence of the importance of a homely atmosphere in healthcare settings.

Persons who suffer from cancer are an exceptional kind of patient, as most of them face long, systematic and intensive hospital therapy. Long stays away from home are physically and mentally exhausting. The hospitals in which a patient spends most of their life while being sick are primarily designed to provide optimal conditions in terms of safety of use, fire protection, internal microclimate, and acoustic, hygienic, sanitary (including microbiological) and lighting conditions (daylighting and artificial illumination). Despite many empirical findings [1] that point to patients having a much wider array of needs, such as for entertainment and recreation, they are still treated as secondary. The design of patient rooms and common spaces and the use of materials and colours have a measurable impact on human perception of space and psychological states [1]. In 1995, an organisation named Maggie's was founded in response to the low aesthetic quality of hospital spaces. It was established in the United Kingdom by writer, artist and breast cancer patient Maggie Keswick Jencks (d. 8 July 1995) and her husband, landscape designer Charles Jencks. Maggie Keswick Jencks was first diagnosed with cancer in 1988. For the next seven years, until her death, she battled her recurring condition. This time made her aware of just how unfriendly hospital environments were to cancer patients and of the destructive influence they had on the psychological condition and everyday lives of patients. As a consequence, the Jenckses decided to found an organisation whose objective would be to establish centres that would provide patients and their loved ones with a feeling of

homely safety and peace and would be located in close proximity to hospitals [2].

Objective of the study

The main goal of the study presented in this paper was to prepare a set of guidelines for the design of out-of-hospital patient centres (for adults) in the form of independent buildings with recreational and specialist facilities without accommodations.

The secondary goal of the study was to present case studies of good practice in design solutions focused on architecture that supports people who require long-term hospitalisation. The concept of building such facilities is currently very popular in the United Kingdom and the first signs of its influence can already be felt in other European countries.

It was also important to highlight and stress the need to build an environment with characteristics similar to those of a home, and whose architectural qualities can aid in the treatment and convalescence of chronic patients. The overall goal of the study is to aid in humanising the built environment and medical and healthcare settings.

Methodology and scope

This paper has been divided into thematic sections that correspond to the course of the study and its chronology. Each section presents a separate methodology. The subject matter was formulated based on an extensive analysis of the literature on elementary design principles with a focus on persons with special needs, seniors and the ill.

The case study section was based on an architectural analysis of: functio-spatial pro-

grammes, floor plans, cross-sections and interior designs, supported by knowledge of psychological and sociological conditions of indoor and outdoor space perception and the impact of design on user comfort and psychophysical safety. In the discussion, based on critical analysis and synthesis, we rated the elements identified in the preceding section along with their architectural characteristics so as to determine the most beneficial solutions. In the conclusions, we synthesised earlier information and formulated design guidelines. The entire study was then summarised so as to highlight the link between the research and architectural theory and practice as presented in documents dedicated to chronic patients.

The scope of the study covered the thirty buildings belonging to the typological group under discussion that have been built thus far—twenty-seven of these are located in the United Kingdom, while the remaining three are located in Japan, China and Spain [3]. We selected and discussed two essential Maggie's Centre cases, which have been presented as case studies. The cases compared here were selected on the basis of their date of completion, size and place-based context. Due to the type of cases of so-called good practice, it was possible to identify common fundamental design and interior arrangement precepts for such buildings. We also analysed Maggie's Architecture and Landscape Brief made available by Maggie's, which discusses the design of the organisation's centres.

Subject matter

Apart from the context of its construction, the architecture of Maggie's Centres is also

recognised for other reasons. Many outstanding architectural companies took part in the design of the centres, and each of the buildings is unique in terms of architectural form. The organisation itself has given designers considerable artistic freedom, and the only guidelines that new buildings should adhere to have been included in the concise Maggie's Architecture and Landscape Brief. It lists the primary goals of creating a centre's space and its functioning. The document features fourteen recommended spatial requirements and their arrangement [4]. The requirements list has the following items: entrance, welcome hall, office, kitchen, computer desk, notice board, library, sitting room, consultation room, toilets, retreat, views out, views in, parking.

Maggie's Architecture and Landscape Brief does not feature any architectural dimensions. This allows architects to decide about the visual aspect of each zone on their own. However, architectural freedom must still be channelled to create the atmosphere described in Maggie's Brief. Designers have admitted that during the conceptual design phase they visit existing Maggie's Centres to observe their own emotional reactions as well as those of patients [5].

Collective case study

The first Maggie's Centre that served as a basis for building its later successive iterations was built in Edinburgh. It was designed by Richard Murphy Architects. It was completed in 1996 and extended in 2001. The architectural solutions used in the design currently form the basis of the guidelines featured in Maggie's Architecture and Landscape Brief. The architectural form of Maggie's Edinburgh is a contrast to the large and prosaic architecture of the hospital complex it abuts. To provide patients with homely security and peace, the architects used a house located close to the medical complex. They adapted it to the needs of patients both inside and outside. The modifications did not significantly impact the external finishes and the main divisions of the house's facade. The 2001 remodelling project extended the centre to include two additional masses that contrast with the existing development and reference Postmodern architecture. Despite the centre's small plot, the plants in the garden were designed with immense precision so as to provide an additional recreational space for patients outside the building. The entrance to this Maggie's Centre faces the street and is located exactly where the front door to the house used to be. Because of the provision of a wide pavement and the levelling of the site, it is easily accessible to persons with full motor skills and those who use a wheelchair. The large, two-level entrance hall that opens up to a recreational zone with a dining hall was designed so that it can 'invite' guests to come

in by gradual 'acclimation'. The hall located at the geometric centre of the facility features a set of stairs whose landings act as small libraries with bookshelves. The colours that dominate this space include warm shades of yellow and orange, while the landings are a contrasting green. Accounting for the building's northern orientation, to the left-hand side of the hall (from the west) there is a large open kitchen with an island and a large table for ten. Brightly coloured wood clearly dominates the space. It features prominently in the furniture, the table and chairs, and on the floor. Large glazed surfaces were designed in place of two old wooden gates, which contributes to optically expanding the space, while natural lighting further highlights the already warm colours of interior finishes. During the remodelling project (the start of the twenty-first century), the dining hall was extended to include a space for rest, designed as a small, glazed winter garden. On the opposite side of the entrance zone (the eastern part of the building) there is a therapeutic room along with sanitary facilities, with a toilet adapted for persons with limited mobility. In 2001, a new wing was added from the north-east. It features a large open space that can be used to organise classes for patients. This zone is illuminated by large, irregularly-shaped oriels. The interior of this space is also dominated by wood and features a purple wall that attracts most of the attention when inside. The second storey features primarily administrative spaces and an additional therapy room. The building, in which all spaces that house functions that are essential and important to patients have been placed on the ground floor, is easily and comfortably accessible to patients. Due to an increased need for a recreational and therapeutic area in the centre, the wing was extended again in 2018—two therapy rooms and one group room for workshops were added [3, 4, 6].

The distinctive features of the Maggie's Edinburgh include:

- Each space is open, which facilitates orientation among users, including users with disabilities,
- Visible attention to adapting architectural and construction solutions to the needs of persons with limited mobility,
- Application of colours that induce positive emotions, with well-thought-out contrasting shades that increase architectural barrier visibility,
- Application of zones and furniture that facilitate social integration.

The second case to be subjected to detailed analysis in the study was Maggie's Manchester in Great Britain. The Christie Hospital in Manchester houses the largest cancer ward in all of Great Britain. In 2016, its patients gained a new recreational and therapeutic workshop space—Maggie's Manches-

ter designed by Foster and Partners. Due to the need for a facility for a greater number of patients, it is one of the larger Maggie's buildings. Its distinctive feature is its elongated form and truss-based roof structural system. The single-storey mezzanine-equipped building is surrounded by lush greenery that insulates it from the external environment. From the south, the building features a greenhouse (fig. 1. – A), whose location at the building's gable defines a formal entrance (fig. 1. – B) to the building and its garden. From the perspective of an external observer, it is not clearly highlighted, as main access to the grounds and to the Maggie's Manchester building (fig. 1. – C) is located in the north-western part of the site. This provides the building's users with greater privacy. The entrance zone, as in the case of Maggie's Edinburgh, is spacious and well-lit by natural sunlight. The building's entire functional layout was designed to be linear due to its orientation relative to the cardinal directions. East-facing spaces have a private and semi-private character—they include therapy rooms and workshop zones. Two courtyards were designed between them (fig. 1. – D), which has prevented entrances to therapy rooms from being close to each other (fig. 1. – E), defining privacy zones. Two group halls are located nearby: a smaller and a larger one. Their flexible arrangement makes it possible to organise all manners of workshops (fig. 1. – F–G). Public day zones have been placed on the west-facing side. They are not clearly separated from one another. Two large recreational complexes were provided (fig. 1. – H, I) on each end of the building, as well as two smaller ones with large insular furniture (fig. 1. – J) and a table for ten (fig. 1. – K). The ancillary spaces, toilets and stairs located on an axis together with the building's formal entrance (fig. 1. – B) create a single strip that separates the private and public zones. The strip includes an open mezzanine illuminated by ten geometric oriels in the canopy. The finishes of Maggie's Manchester are much more neutral than those in Maggie's Edinburgh. The walls are white and form a background for the roof's bold structural system. The use of a graphite-coloured pavement surface around the centre and large glazed surfaces that extend from the floor to the roof structure has created an illusion of a levitating roof truss. The white walls are also a compositional base for the colourful materials used to make recreational furniture and for the interior's artworks. It is difficult to find a wall fragment that has not been used to grasp the extraordinary character of paintings by excellent artists, Eduardo Paolozzi included. The rest zones feature sofas, armchairs, cupboards and bookshelves. A black fireplace suspended from the ceiling near the main entrance to the building is a distinctive element of its décor [3, 7].



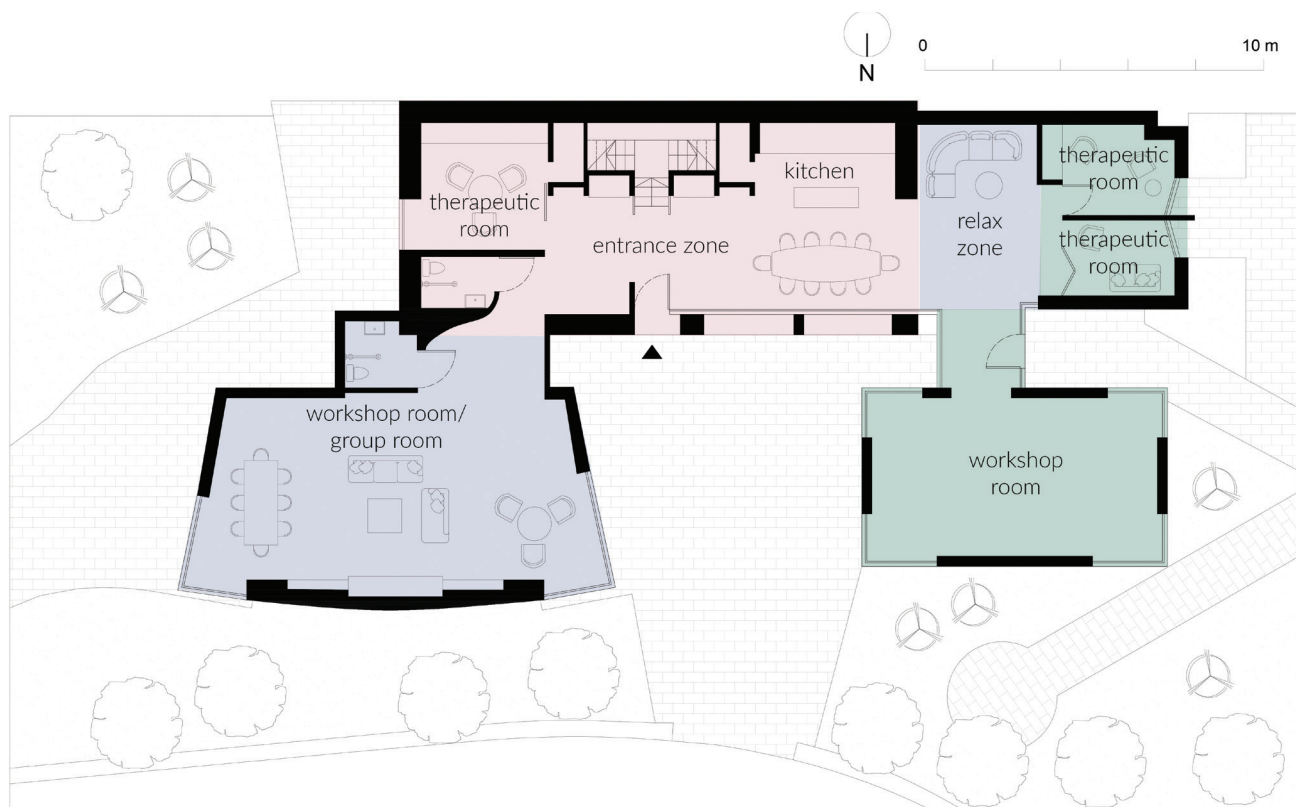


Fig. 1. Maggie's Edinburgh ground-floor plan. The stages of the building's extension have been marked using the following colours: red – first stage; blue – second stage (2001 extension); green – third stage (2018 remodelling). Original drawing based on [6]

In summary, the distinctive architectural features of this space include:

- Attention to patient privacy, approached similarly as in traditional housing buildings,
- Application of natural materials that are friendly to physical and psychological health (e.g. wood),
- A substantial amount of external recreational space has been provided.

Discussion

When designing a Maggie's Centre, every architect faces the immense challenge of understanding the needs of ill persons and reflecting them in architecture. The case of the multiple remodelling projects of Maggie's Edinburgh demonstrates the long process of analysing space and adapting it to these needs. Due to the facility's development, it was possible to observe the functioning of the building during each of its phases. Ultimately, it contributed to the writing of Maggie's Architecture and Landscape Brief, which presents the principles of creating space within such facilities in a very fluid manner. Prior to beginning cooperation with the organisation, Norman Foster had faced cancer himself. The architect admitted that he had never read the brief, as he used his own experiences associated with the condition in the design. He used a vision of a space in which he would have wanted to spend the first moments after hearing the diagnosis as a source [8]. Both cases, due to the argumentation presented above, com-

bined with the official Brief of the organisation, were an important source used to define the principles of designing the architecture of facilities like Maggie's Centres. Seniors and patients face many physical and psychological dysfunctions and do so to a greater degree than young people. Of these, mobility is a problem that merits special attention from architects. The building must be adapted to the specificity of wheelchair use. Facilities similar to Maggie's Centres must have a legible functional layout and be accessible to every user [9]. Spaces for use by patients should be designed on a single storey so that users would not have to move between levels. Due to patients often having poor eyesight, it is recommended to provide the best possible daylighting conditions. This is particularly crucial in spaces like kitchens, dining rooms and rest zones, where patients spend the most time together. The worsening eyesight of cancer patients also affects their ability to distinguish colours of similar intensity. It is clearly recommended to avoid using pastel and dark colour shades [10]. It is suggested to apply and pair proper colours such as blues and greens that aid in relaxation, as well as oranges and yellows that stimulate and improve mood [11]. Cancer causes severe psychological distress associated with stress and fear, which are accompanied by inhibited information processing, storage and expression. This affects the perception of the environment and results in difficulties in adapting to new settings, accompanied by heightened anxiety. This is why it is so important

to create a space that is perceived as friendly. However, the building should not be boring or banal. Many Maggie's Centres have extraordinary and surprising forms that are intriguing to patients and their families and allow them to forget about the diagnosis, if only for a brief moment. Of course, the design should be balanced so that patients and seniors with the abovementioned dysfunctions can feel relaxed and comfortable inside [12]. Norman Foster admitted that he used a typical American wooden colonial house as an inspiration while designing his Maggie's Centre [8]. In the case of the Manchester facility, the use of wood, which is a traditional material, suppressed the innovative and non-standard roof structure. Based on the data collected and the analysis of the presented case studies, a set of guidelines for the design of the ten major space types was formulated. Each space was assigned a function, labelled as either a private, semi-private or public space, and had its form and materials defined [8].

Conclusions

Based on the discussion presented above and the Maggie's Centre recommendations document cited, general guidelines for the design of spaces for chronic patients were prepared along with a listing that presents the method of design of each main functional zone. The general guidelines include:

- Applying a hierarchy of functional zones so as to gradually ease guest emotions (particularly first-time guests);

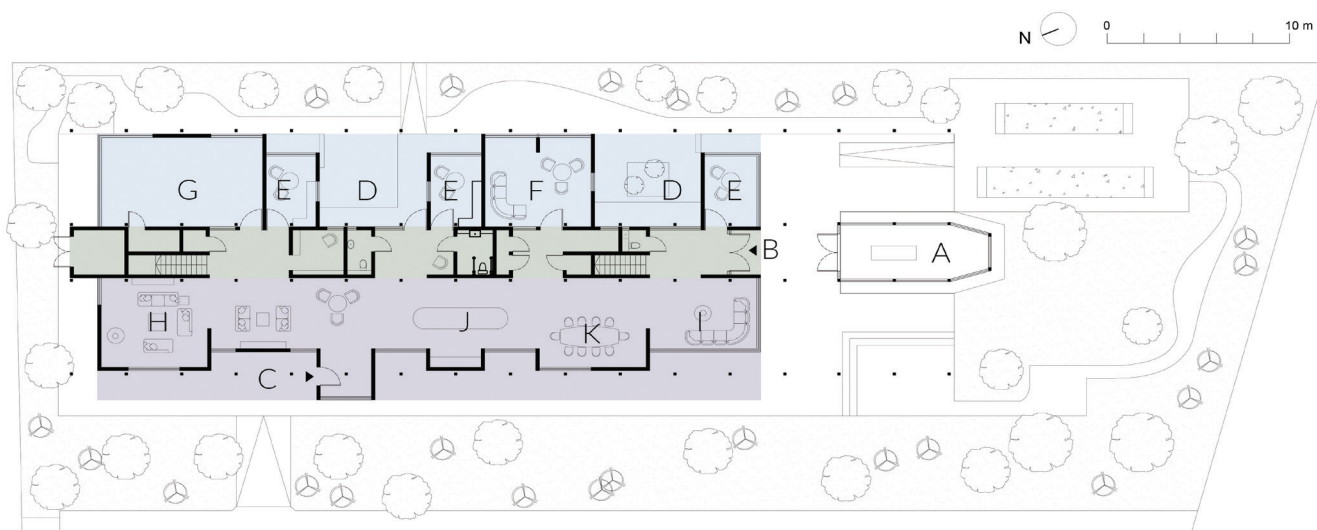


Fig. 2. Maggie's Manchester ground-floor plan. The building's functional division has been marked using colours: blue – therapy rooms, workshop spaces; green – technical spaces, sanitary spaces, circulation, mezzanine; purple – dining room, kitchen, rest zones. Original drawing based on [7]

- Ensuring a triple centre functioning scheme: spaces accessible to all patients and their loved ones at the same time (e.g. kitchens), spaces accessible to a few select patients at a time (e.g. workshop spaces), spaces where only a single patient or a patient's loved one can be present at a time (e.g. therapy rooms);
- Ensuring proper daylighting, placing rest spaces and dining rooms in west- and/or south-facing areas;
- Ensuring the openness of each space so as to facilitate good orientation of users, including users with disabilities;
- Attention must be paid to adapting architectural and structural solutions to the needs of persons with limited mobility;
- Application of colours that produce positive emotions and well-thought-out contrasting shades to increase architectural barrier visibility;
- Application of materials that can prove beneficial in perceiving space by seniors and patients: materials that are durable, natural and pleasant to touch, such as wood;
- Application of colours that improve user mood: white, shades of yellow, orange, blue and green (it is unadvised to use dark and pastel shades);
- Application of zones and furniture that facilitate social integration;
- Ensuring ample external recreational space;
- Creating outdoor–indoor relationships (garden–building) by using the same materials and large glazed surfaces with a view.

Detailed guidelines have been presented below:

The guidelines presented above are the outcome of a synthesis of the needs of persons with disabilities and patients and architectural theory and practice in terms of designs dedicated to such persons. Due to the concept of creating hospital chronic patient centres that has been developing in many countries, the guidelines presented here can be used as a basis for the design process and can prove helpful in conducting real estate development processes that focus on such buildings.

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Abstract: This paper presents a study on the architecture created for the needs of Maggie's, a charity organisation, whose main aim since 1995 has been the creation of facilities (centres) for the short-term stay of cancer patients and their families without accommodation options. The main purpose of Maggie's facilities is to provide patients and their loved ones with a sense of home security and peace during hospital therapies. This paper discusses several centres, located all over the world, as well as the features of shaping space common to the presented examples as determined. Their architectural layouts were analysed with a focus on patient needs and activity. Based on the designs of Maggie's Centres, we identified basic principles of design and interior arrangement that can be used in other medical buildings and those that require their patients to maintain a high degree of psychophysical comfort. This paper presents evidence of the importance of a homely atmosphere in healthcare settings.

Keywords: centre, therapy, illness, atmosphere

Streszczenie: TERAPIA ARCHITEKTURĄ. ZASADY PROJEKTOWANIA I KSZTAŁTOWANIA PRZESTRZENI W OŚRODKACH DLA OSÓB CIERPIĄCYCH NA CHOROBY NOWOTWOROWE NA PRZYKŁADZIE ARCHITEKTURY MAGGIE'S CENTER. W artykule przedstawiono badania prowadzone nad architekturą

Table 1. Zones, their functions and form in hospital patient centres. Original work based on [4, 9, 11, 12]

space	function*	form	materials
entrance zone	public, first contact between the user and the building's internal space, intended to invite potential users inside	<ul style="list-style-type: none"> – attracts attention – open to other zones (the user can identify each space already from the entrance zone) – can have additional functions, e.g. a library 	– materials fluidly transition from outside the building inside (e.g. the same floor surface)
kitchen	Public, used to prepare meals in a group, meeting place	<ul style="list-style-type: none"> – easily accessible from the entrance zone (key zone of the centre, where patients can meet) – kitchen furniture with a large kitchen island accessible from all sides – lowered worktable for disabled persons, ca. 85 cm high – chairs that allow sitting at the island – intensively daylight zone 	<ul style="list-style-type: none"> – wood (warm colour and pleasant physical sensations) as the dominant kitchen furniture material – predominantly in yellows and oranges that facilitate well-being and facilitate feelings of relief – easily cleaned and disinfected floor
dining room	Public, used to eat meals in a group and for conversations	<ul style="list-style-type: none"> – table for 10–12 people (round table, min. r = 1.7 m; rectangular table min. 1.1 m x 2.6 m) – chairs with a comfortable, profiled backrests – should face west/south 	<ul style="list-style-type: none"> – table made from high-quality natural materials (wood, stone) – wooden chairs
small rest zone	semi-private, a zone where patients can talk in a smaller group	– easily accessible but not fully open towards other zones	– neutral wall colours
large rest zone	public, used for collective relaxation and integration between patients and their families	<ul style="list-style-type: none"> – should have a space for installing a fireplace – comfortable lounge furniture – a place for books, e.g. a small bookshelf – art exhibition – should face west/south 	<ul style="list-style-type: none"> – walls in intensive colours, but not dark – wooden floor – wooden furniture with natural finishes
therapy room	private, a space where the patient is one-on-one with a therapist, optionally with their closest loved ones; it can also act as a space for the patient to regenerate after hospital therapy in solitude	<ul style="list-style-type: none"> – smaller spaces – isolated from the rest of the building – it is advised not to place therapy rooms near each other, – acoustically insulated from public spaces 	<ul style="list-style-type: none"> – comfortable furniture such as armchairs or sofas, separately for the patient and therapist – can include a bed that can aid in patient regeneration – blue and green colours that aid in relaxation and focus – paintings and wall decorations to make the space more 'friendly'
group space (workshop space)	public/semi-private depending on the type of workshop, a space for classes and activities (such as yoga) that require full concentration	<ul style="list-style-type: none"> – large open space, with a recommended furniture and workshop tool storage – intensively daylight, it is suggested to use skylights or glazed surfaces above eye-level so as to minimise deconcentration among workshop participants 	<ul style="list-style-type: none"> – walls painted in bright, warm, neutral colours (less participant deconcentration) – light, durable and mobile furniture (from plastics, wood)
toilets	private, intended for relieving physiological needs, but is also a place where patients can 'vent' their emotions	<ul style="list-style-type: none"> – adapted to the needs of disabled persons acc. to applicable standards – restroom vestibule with an armchair, – it is suggested for there to be at least three toilets in the building 	<ul style="list-style-type: none"> – cleanable and disinfected, – colour accents
administrative spaces	public	– hidden in the building, e.g. on an upper floor or mezzanine	– following standards and building code regulations
garden	public, an alternative place of rest and workshops for patients	– numerous recreational zones with benches and tables usable during warmer months, alternatively as a year-long space, e.g. as a greenhouse	<ul style="list-style-type: none"> – diverse range of plants: tall, medium-height and low-lying greenery – application of evergreens

*distinction into public (accessible to all patients and their families at a time), semi-private (accessible to a few selected patients) and private functions (accessible only to a single patient or a patient's loved one at a time)

zaprojektowaną dla potrzeb organizacji Maggie's Center, której głównym celem od 1995 roku jest tworzenie obiektów (ośrodków) służących do krótkotrwałego pobytu osób cierpiących na choroby nowotworowe i ich rodzin bez możliwości noclegowych. Maggie's Center mają przede wszystkim zapewnić pacjentom, a także ich najbliższemu poczucie domowego bezpieczeństwa oraz spokoju, kiedy są w trakcie szpitalnych terapii. Omówiono kilka z nich, zlokalizowanych w różnych miejscach świata,

a następnie określono wspólne dla przedstawionych przykładów cechy kształtowania przestrzeni. W szczególny sposób przeanalizowano układ architektoniczny w stosunku do potrzeb i sposobu funkcjonowania osób chorych. Na podstawie projektów Maggie's Center wskazano podstawowe zasady projektowania oraz aranżacji wnętrz, które mogłyby być w przyszłości wykorzystywane w innych budynkach funkcji medycznej, a wymagających wysokiego komfortu psychofizycznego pacjentów. W arty-

kule prezentuje się dowody na znaczenie domowej atmosfery w ośrodkach służby zdrowia.

Słowa kluczowe: ośrodek, terapia, choroba, atmosfera